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Abstract: The recent history of biodiversity conservation practice has been characterised by the increasing use of Market-Based Instruments. In seeking to understand this development, an emerging body of critical social science research tends to characterise conservationists as being ideologically in favour of markets in conservation. An alternative possibility is that conservationists pursue market solutions as a pragmatic response to prevailing political and economic circumstances. In this paper we seek to establish empirically what a sample of conservation professionals actually think about markets in conservation. We used Q-methodology, a tool for analysing structure and form within respondents' subjective positions. The results show that our respondents are circumspect about the growing use of markets in conservation. We identify two dominant discourses that we label 'outcome focused enthusiasm and 'ideological scepticism'. Neither of these perspectives indicates strong, or uncritical, support for market approaches, and the views of our respondents appear to recognise the limitations of markets both in theory and practice. While there is some difference in views between the two dominant discourses that we document in this paper, there is considerable convergence towards a position that we label 'cautious pragmatism'. We conclude that those studying conservation need to be cautious about over-generalising the perspectives and values held by conservation professionals, as there appears to be far less consensus about the adoption of market-led approaches in this sector than has been suggested. Further research could investigate the drivers of pro-market behaviour at the organisational level given the evident personal scepticism of our respondents.

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Highlights

Social scientists commonly argue that biodiversity conservationists support markets > We use Q methodological analysis to test this assumption > We find two distinct perspectives, which show convergence around cautious pragmatism > Views on markets are more sceptical than the social science literature suggests > We identify reasons that individuals' perspectives might diverge from organizational.

What do conservationists think about markets?

Abstract

The recent history of biodiversity conservation practice has been characterised by the increasing use of Market-Based Instruments. In seeking to understand this development, an emerging body of critical social science research tends to characterise conservationists as being ideologically in favour of markets in conservation. An alternative possibility is that conservationists pursue market solutions as a pragmatic response to prevailing political and economic circumstances. In this paper we seek to establish empirically what a sample of conservation professionals actually think about markets in conservation. We used Q-methodology, a tool for analysing structure and form within respondents' subjective positions. The results show that our respondents are circumspect about the growing use of markets in conservation. We identify two dominant discourses that we label 'outcome focused enthusiasm and 'ideological scepticism'. Neither of these perspectives indicates strong, or uncritical, support for market approaches, and the views of our respondents appear to recognise the limitations of markets both in theory and practice. While there is some difference in views between the two dominant discourses that we document in this paper, there is considerable convergence towards a position that we label 'cautious pragmatism'. We conclude that those studying conservation need to be cautious about over-generalising the perspectives and values held by conservation professionals, as there appears to be far less consensus about the adoption of market-led approaches in this sector than has been suggested. Further research could investigate the drivers of pro-market behaviour at the organisational level given the evident personal scepticism of our respondents.

Keywords

Biodiversity conservation; markets; commodification; Q methodology; practitioner perspectives; neoliberalism

1.1 Introduction

The recent history of biodiversity conservation practice has been characterised by the increasing use of 'Market-Based Instruments' (MBIs) (Büscher et al., 2012; Pirard, 2012). These instruments are diverse, ranging from long-standing approaches such as nature-based tourism through to newer innovations such as markets in carbon emissions permits. The precise definition of MBIs and the extent to which they are truly market-based remains contentious, but they are united by the common characteristic that "a price is attributed to nature" (Pirard, 2012; p62). MBIs are expected to deliver a range of benefits for conservation, including: new sources of funding (e.g. Balmford and Whitten, 2003; Ferraro, 2001; Wunder, 2007); an expectation of efficiency achieved through the market by processes of commodification, trade and competition (Brockington and Duffy, 2011; Pirard, 2012); and the promotion of an economic rationale for conservation that decision makers will take seriously (Pearce and Barbier, 2000; Costanza et al., 1997; Daily, 1997).

The practice of market-based conservation has resulted in new, and in some cases radically altered, relationships between conservation actors, the private sector, governments and local people. For example, whereas until the late 20th Century mainstream conservation NGOs were often actively hostile to corporate interests (MacDonald, 2010), partnerships between these actors are now very common, and indeed central to much conservation practice (MacDonald, 2011). Some even argue that market-based conservation has become so firmly embedded in the contemporary practice of conservation that it can be seen as a form of orthodoxy (e.g. Igoe et al., 2010).

The growing significance of market-based conservation has not gone unnoticed by scholars, and the last few years have seen a rapidly emerging body of critical social science research that seeks to

48 understand this development (reviewed by Büscher et al., 2012). From this perspective, the rising
49 prominence of market-based conservation can be understood as part of a broader political
50 economic process of neoliberalisation, in which an ever-growing range of activities are brought
51 within the sphere of markets (Castree, 2008; Igoe and Brockington, 2007). Scholars have identified a
52 range of potential problems with 'neoliberal conservation'. These include the impacts of market-
53 based conservation on less powerful actors such as local people (Dressler and Roth, 2011), the
54 questionable logic of using markets to solve problems that are arguably of their own making and
55 that MBIs might legitimise further exploitation of nature (Kosoy and Corbera, 2010), and the
56 possibility that MBIs in conservation are 'anti-political', technical fixes to what are essentially
57 political problems (Büscher, 2010). These views were clearly dominant at the recent Nature Inc.
58 conference in the Hague (2011)[1] and captured in a special issue of *Development and Change* under
59 the same title (Arsel and Büscher, 2012). They were also a prominent aspect of recent debate and
60 controversy over 'The Green Economy' at the Rio + 20 summit in June 2012, with developing country
61 and NGO critics of this approach articulating similar reservations, and expressing the risk that
62 markets and economic mechanisms might undermine alternative ways of achieving sustainable
63 development (Doran et al., 2012).

64 Whilst the growth in market-based conservation is undeniable, relatively little research attention has
65 been given to what conservationists themselves actually think about this approach. On one hand, it
66 has been suggested that conservationists (and specifically conservation biologists) have strongly
67 embraced the market logic and are in general (perhaps unthinkingly) 'pro-markets' (Büscher, 2008).
68 This view appears to be shared by many critical social scientists studying conservation. For example,
69 Roth & Dressler (2012) in the introduction to a recent special issue of this journal on Market-
70 Oriented Conservation Governance describe "the unquestioning faith an ever-growing number of
71 agencies, organizations and people have come to place in valuing nature for the sake of financing
72 conservation and supporting livelihoods." (p365). Likewise Büscher et al. (2012) claim that

[1] This conference was attended by two of the authors of this paper (CS & JF).

73 "neoliberal solutions in conservation appear as a consensus, and dissent is rarely visible" (p.15). They
74 argue that this is "because neoliberal conservation functions as an ideology, becoming socially (and
75 ecologically) embedded through generating the hegemonic governance structures and practices
76 through which it is reproduced" (p.15).

77 On the other hand, critical views of market-based conservation can also be found outside the
78 community of scholars represented at the Nature Inc. event, including among those who might
79 consider themselves conservationists. McCauley (2006) wrote of the danger that "selling out on
80 nature" (p27) by turning it into tradable commodities would undermine ethical and moral
81 arguments for conservation[2]. Ehrlich and Pringle consider that subjecting ecosystems to market
82 conditions in capitalist economies would "ensure their eventual diminution and demise" (2008; p.
83 11583). Likewise the ecological economist Richard Norgaard (2010) argues that market metaphors
84 around ecosystem services are useful heuristic tools to make the case for conservation, but that
85 mobilising the metaphor into actual market instruments is deeply problematic. These examples
86 suggest that a range of views on market-based conservation are likely to exist within the
87 conservation community, which is itself highly heterogeneous in terms of values (Sandbrook et al.,
88 2010).

89 So what is going on here? Is there a pro-market consensus among conservationists as suggested by
90 the critical social science discourse, or, as Redford (2011) has suggested, is this view an example of
91 the "generalisations made by social scientists about conservation that are incorrect or incomplete"
92 (p.326)? Our aim in this paper is to shed some empirical light on this question by analysing the views
93 held by a range of 'mainstream' conservationists on the role of market based instruments in
94 conservation. We carried out this study using Q-methodology, a tool for analysing structure and
95 form within respondents' subjective positions (Dryzek and Berejikian, 1993; McKeown and Thomas,
96 1998). We begin the paper with a more detailed literature review of the role of markets in

[2] The philosopher Michael Sandel (2012) makes a similar argument, albeit not from an environmental perspective

97 conservation, discussing elements of rationale and practice. We then explain Q-methodology, and its
98 application to delegates at the Society for Conservation Biology annual congress in 2011. The results
99 demonstrate that although a cautiously pragmatic 'pro-markets' perspective is clearly shared by our
100 respondents, they also hold other more critical perspectives, suggesting that they have not
101 unquestioningly and universally embraced the logic of markets.

102

103 **2.1 Debates about markets in conservation**

104 2.1.1 Markets in theory

105 Arguments are often made for market instruments using a logic based on the following sequence.
106 Neoclassical economics starts by suggesting that environmental problems arise due to a divergence
107 between the private and social costs and benefits of particular activities, characterised as
108 externalities. This results in an inefficient allocation of resources, as exchange and prices reflect
109 private costs and benefits, and therefore fail to reflect social values and scarcity (Coase, 1960; Pigou,
110 1920). Solutions to the externality problem include regulation, the use of taxation, or market-based
111 instruments, but economists have shown that market instruments can be the least cost way of
112 achieving desired environmental goals (Baumol and Oates, 1988; Pearce and Turner, 1990).

113 A special case of the externality problem is where resources are not controlled by private owners,
114 and are managed as (non-rival and non-excludable) public goods, resulting in degradation and
115 undersupply (Myers, 1996; Pearce and Barbier, 2000). In order to better reflect social values in
116 decision making about public goods, economic valuation of the non-market values of environmental
117 goods and services is advocated, to balance them against other policy objectives (Costanza et al.,
118 1997; Daily, 1997; MEA, 2005; Myers, 1996; Pearce and Barbier, 2000; Turner et al., 2003), and
119 ultimately, to secure their supply. The logic follows that, if not economically valued, environmental
120 goods and services will be assigned a default value of zero (Pearce and Barbier, 2000; Sukhdev,

2008). While valuation need not be associated with trading and the use of markets (Costanza, 2006; Reid et al., 2006), MBIs are often advocated following the logic laid out above, as the means for capturing non-market values in order to ensure the supply of environmental goods and services.

Yet, critical scholars commonly do not subscribe to this logic, instead attributing environmental problems to the spread of market norms and mechanisms, particularly through the process of neoliberalisation (O'Neill, 2007; Sullivan, 2006). David Harvey characterises neoliberalism as a political project to restore, renew and expand conditions for capital accumulation, maintaining the power of economic elites (in Heynen et al., 2007; cf. O'Neill, 2007). In this framing, markets in conservation could be seen as a way of developing novel commodities as new vehicles for facilitating the process of capital accumulation (Robertson, 2006).

As well as these generalised concerns about their philosophical basis and underlying worldview, strong resistance to the use of MBIs in conservation stems from fundamental concerns about the processes of valuation and commodification (Büscher et al., 2012; Global Forest Coalition, 2006; Sullivan, 2006). While proponents of valuation distinguish valuation from commodification (e.g. Costanza, 2006; Reid et al., 2006), opponents tend to equate these processes. As regards valuation, critics question whether value in the environment can be adequately expressed in monetary terms, or whether these are incommensurable. Vatn (2000) suggests that the environment has previously escaped pricing because ethical aspects are ascribed to it which cannot be adequately or appropriately priced. Sagoff (2004, 2008) argues that the market price (value in exchange) of ES differs significantly from their use value (the benefit they provide); in addition, markets will inevitably ascribe different values than scientific valuation (Sagoff, 2011). Yet, despite these debates, Adams and Redford regard the emphasis on monetary value a 'fact of life' in policy (2010). Whilst ecological economists (e.g. Fisher et al., 2008) tend to argue, in line with the MA (2005), that monetary values can be incorporated alongside other values (e.g. ethical or scientific) in decision-making, some authors actually frame this in terms of a trade-off, whereby reliance on monetary

146 values erodes other values (e.g. Martinez-Alier, 2009; O'Neill, 2007). Martinez-Alier's work
147 articulates this as the reductive approach of valuation and cost-benefit analysis degrading the
148 legitimacy of 'human rights, collective territorial rights, sacredness, ecological, and aesthetic values'
149 (2009). Rather than monetary valuation, many advocate deliberation in public policy, for the explicit
150 acknowledgement of decisions as moral or political, rather than solely economic (McCauley, 2006;
151 O'Neill, 2007; Sagoff, 2004; Sandel, 2012).

152 Commodification[3], a process associated with the concept of ecosystem services, involves separation,
153 both between services themselves, and between services and their ecological production (Norgaard,
154 2010). Kosoy and Corbera (2010) invoke Marx's notion of commodity fetishism, through which the
155 processes producing commodities (in Marx's conceptualisation, labour, here ecosystem functioning)
156 are masked in the commodity. For critical scholars, this tends to be seen as antithetical to an
157 ecological worldview and an holistic approach to nature, because integrity and wholeness are
158 important elements of intrinsic value (Robinson, 2011).

159 Beyond these arguments about valuation and commodification, advocates of MBIs make specific
160 claims about the cost effectiveness of market-based approaches to achieve desired environmental
161 goals (Baumol and Oates, 1988). Pearce and Barbier (2000) promote the increasing adoption of
162 market-based instruments, as more flexible and efficient than regulatory approaches, in order to
163 deliver environmental improvements. Others highlight additional benefits, that MBIs promote
164 transparency of information and clarity of land tenure (Bishop, 2008).

165 Another key rationale in an age of western government austerity is the expectation of efficient use
166 of limited funding (Albers and Ferraro, 2006; Ferraro, 2001). Whilst generalised claims are made
167 about the efficient nature of MBIs, particular market-based instruments encompass specific claims.

[3] We adopt Prudham's (2008) definition of commodification: 'interlinked processes whereby: production for use is systematically displaced by production for exchange; social consumption and reproduction increasingly relies on purchased commodities; new classes of goods and services are made available in the commodity-form; and money plays an increasing role in mediating exchange as a common currency of value.'

168 Ferraro (2001) made a seminal case for targeted, direct payments, with specific claim to efficient
169 performance if these were conditional on conservation performance (now, more commonly known
170 as Payments for Ecosystem Services, PES). These are expected to circumvent the inefficiency and
171 inadequate targeting of integrated approaches, which are often only indirectly linked to
172 environmental performance (Ferraro, 2001; Ferraro and Kiss, 2002; Wunder, 2007).

173 The conservation community also appears to be strongly motivated by pragmatism in the use of
174 market instruments. The philosophy of environmental pragmatism combines intrinsic and
175 instrumental values for nature (Sandbrook et al., 2010). This approach does not display close
176 adherence to traditional conservation doctrines (Miller et al., 2011), but applies certain values
177 according to the context (Robinson, 2011). Hence, in an era of the expansion of MBIs in public policy
178 (Sandel, 2012), the use of markets in conservation is perceived by many practitioners to be politically
179 expedient, and to deepen beneficial partnerships with private sector actors that have enormous
180 power to deliver, or to undermine, conservation objectives (Robinson, 2012).

181 2.1.2 Markets in practice

182 We turn now to focus more directly on practical implications of the use of markets. This is a difficult
183 subject about which to generalise because, firstly, a remarkable range of interventions are referred
184 to as market based instruments (reviewed by Muradian et al. 2012; Pirard, 2012), and secondly,
185 many of their local implications depend closely on contextual factors, aspects of the society in which
186 they are used, and the process through which they are implemented. Yet broadly, advocates
187 promote market mechanisms as empowering, and critics commonly characterise them as
188 exploitative. However, it is worth noting that debates about markets often occur at the level of
189 rationale, being more ideological than practical in character, and few bear much reference to
190 empirical work.

Whilst many aspects of markets are highly contested, authors from various backgrounds display concern about the dynamic qualities of markets, suggesting that inherent 'flux' (McCauley, 2006), and temperamental characteristics (Chan et al., 2007) will not serve conservation (cf. Ehrlich and Pringle, 2008). McCauley illustrates the implications for conservation with a Costa Rican example, showing that pollination service values, and ultimately forest survival, were dependent on volatile coffee prices (2006). When coffee prices crashed, the area was replanted with pineapple, not requiring pollination, which rendered forest pollination services worthless.

In terms of how they are manifest in local situations in the developing world, markets are often promoted on the basis that they can contribute to local livelihoods, in return for the provision of (environmental) goods or services. Advocates highlight the element of voluntarism associated with markets, that people can engage on their own terms, choosing, for instance, whether or not to accept a price (Pagiola et al., 2005). Yet, critics characterise this perspective as blind to political realities and social context (Granovetter, 1985), highlighting for instance that social norms, coercion, and the perceived non-monetary benefits of engagement with markets, undermine the perceived freedom of participants to accept (or reject) a price (e.g. see variety of motivations for engagement in PES, in e.g. Fisher, 2012; Kosoy et al., 2008; Milne and Adams, 2012; Van Hecken and Bastiaensen, 2010). There are also concerns about what natural resources local people may have to forego in engaging with MBIs, with possible limits on access and use (Beymer-Farris and Bassett, 2012; Fairhead et al., 2012), with potentially the most significant implications for the poorest, whose property rights may be least secure. This points to a more general critique that market mechanisms may have inequitable outcomes, as they tend to enhance, rather than challenge, the existing distribution of power and resources, making them blunt instruments as regards distributional and procedural equity (Corbera et al., 2007). Further concerns are raised in relation to the introduction of cash into communities with little experience of the market economy (Wunder, 2007), and the expectations and shifts these precipitate, including for norms of environmental management, potentially changing motivations from an intrinsic to extrinsic basis (Corbera et al., 2007; Fisher,

2012; Gomez-Baggethun et al., 2010; Pattanayak et al., 2010; Sommerville et al., 2009; Van Hecken and Bastiaensen, 2010).

These debates about the moral and practical considerations of markets and their use in conservation frame the context for this paper. We empirically investigate the ways in which these debates are reflected in the perspectives of conservation professionals and academics, and discuss what these grounded findings suggest for the intellectual discourse that we have reviewed here. The next section introduces the methods used in this study, before a description of our detailed results and their implications.

3.1 Methods

3.1.1 What is Q and what does it do?

Q methodology is growing in popularity as a method for exploring the structure and form within and between subjective opinions and discourses (Dryzek and Berejikian, 1993; McKeown and Thomas, 1998; Watts and Stenner, 2012). The method has found increasing application to conservation and environmental research in recent years (e.g. Brannstrom, 2011; Robbins, 2000, 2006; López-i-Gelats et al. 2009). It combines the qualitative study of perceptions with the statistical rigour of quantitative techniques (McKeown and Thomas, 1998; Watts and Stenner, 2012). Q supports an understanding of the detailed composition of positions, making it suitable for our aim to understand the perspectives of conservation professionals. It is designed for use with small numbers of participants (McKeown and Thomas, 1998) and supports the understanding of how subjective positions are shared by people, rather than with their prevalence in a population, which conventional surveys test.

Q methodology requires respondents to arrange statements drawn from the public discourse onto a grid such as that shown in Figure 1. All respondents use the same statements and complete the grid according to their relative positions on the statements, from ‘agree most strongly’ to ‘disagree most

241 strongly'. To reflect the fact that respondents are likely to most strongly agree or disagree with a
242 relatively small number of statements, grids used in Q methodology follow an approximately normal
243 distribution (Watts and Stenner, 2012). The Q grid for our study was relatively flat, with a range from
244 +4 to -4, following recommendations for topics of comparatively high controversy, and survey
245 respondents who are familiar with the issues (Brown, 1980; Watts and Stenner, 2012).

246 **[FIGURE 1 ABOUT HERE]**

247 3.1.2 The Q sample (statements)

248 A Q study starts with identification of the range of perspectives that exist among the respondent
249 population on a given issue. This is used to derive a 'concourse' of statements capturing this range of
250 perspectives. We constructed a Q concourse of statements relating to perspectives on the role of
251 markets in conservation, using a combination of literature review, interview data (derived from an
252 author's PhD study (2011)) and our own experience of extensive interactions with conservation
253 practitioners and scholars. These plural approaches captured a wide range of perspectives. Through
254 this process we identified a set of perspectives that included many of the topical issues in the debate
255 about markets and conservation identified in the previous section, including questions of ethics,
256 pragmatism, ideology and local impacts. From this 'concourse', we removed redundant statements
257 and further selected statements for conciseness, clear positioning, and ones to which participants
258 could respond effectively, leaving a list of 34 statements, the final Q sample. This number of
259 statements works well in Q studies (Fisher and Brown, 2009; Sandbrook et al., 2010), being
260 cognitively manageable for respondents. The statements were tested in a pilot study with two
261 respondents known to the authors. Following the pilot some statements were altered slightly for
262 clarity or to reverse their polarity, to give a relatively balanced sample.

263 3.1.3 The Q participants

Our Q survey was conducted with participants drawn from delegates at the 25th International Congress for Conservation Biology (ICCB), held in Auckland between the 5th and 9th December 2011. This congress is the main international event run by the Society for Conservation Biology, "an international professional organization dedicated to promoting the scientific study of the phenomena that affect the maintenance, loss, and restoration of biological diversity" (http://www.conbio.org/AboutUs/). The event attracts several thousand delegates from around the world, including academics and practitioners. This event was chosen as it was our intention to capture the views of the conservation 'mainstream', including academics and major practitioner NGOs. The ICCB is well attended by this community, and is widely recognised as the most important academic conference of conservation biology. It has also been the direct focus of critique regarding the adoption of neoliberal market-conservation by the conservation community (Büscher, 2008). That said, we recognise that the SCB congress delegates provide a partial view of the conservation universe, and future research using different sampling strategies would be valuable.

CS attended the congress and carried out face to face interviews with respondents, during which they completed the Q survey. Respondents were selected purposively with the deliberate intention of capturing a wide-range of different views that were present among those attending the congress. To do this CS approached delegates, explained the nature of the research topic and ascertained through an informal conversation whether they had a strong view on the research topic. If they did the individual was asked to complete the survey. If they did not have a strong view or expertise on the subject, the respondent was not asked to participate in the survey. This approach continued throughout the congress, until CS felt that a sufficiently wide range of different viewpoints had been captured. Ten respondents were interviewed on site during the congress, and a further two were identified at the congress but then interviewed by CS in the UK after the event. Q method aims to establish the existence of and explain particular viewpoints, and does not allow inferences to be drawn about the prevalence of such viewpoints within a wider population. It is therefore

289 appropriate to use a small but targeted sample, and the standard factor analysis logic of larger
290 samples being 'better' does not apply (Watts and Stenner, 2012).

291 Our sample included one former and four current employees of large international conservation
292 organisations, one social entrepreneur, one employee of an animal welfare organisation, one
293 government advisor and four academics, of whom two were conservation scientists and two
294 economists. Eight were male and four female. All the respondents were from Organisation for
295 Economic Co-operation and Development countries. The large international conservation
296 organisations from which staff members were interviewed are all involved in a number of market-
297 based conservation activities. Respondents were promised anonymity, and were asked to present
298 their own views rather than those of their organisation. Permission to conduct the survey was
299 obtained in advance from the organisers of the ICCB.

300 3.1.4 The interviews

301 All interviews were conducted in a quiet place away from other people. After an initial explanation
302 of the project and the method, respondents completed the Q survey, during which they sorted the
303 statements onto the grid. Statements were presented in a random order that was different for each
304 respondent. Respondents were encouraged to speak during the sort to explain the rationale behind
305 their choices. Where respondents were confused or had questions about statements, CS gave
306 limited help to explain the meaning of the statement whilst aiming not to introduce bias into the
307 respondent's perspective about it. No formal definition of markets or other terms were provided, as
308 we wanted respondents to draw on their own understanding of the concepts (Watts and Stenner,
309 2012). After the survey was completed, respondents were asked to explain what personal
310 experience or ideas they had been drawing on when completing the Q-sort. This was intended to
311 encourage open answers about where views came from and the logic behind the responses. CS
312 wrote notes on the qualitative component of the interviews, including verbatim quotes that were

considered particularly important. These qualitative data were then used to help with the interpretation of the results.

Respondents were not constrained to follow the forced normal distribution shown on the grid, although they were encouraged to follow the normal distribution as closely as possible. Various sources suggest that forcing a normal distribution is not necessary from a statistical point of view. However, encouraging respondents to follow the distribution as far as possible is a practical way of encouraging them to prioritise each statement relative to others (Barry and Proops, 2000; Brown, 1980; McKeown and Thomas, 1998; Watts and Stenner, 2012). Five of the twelve respondents did not exactly follow the normal distribution shown on the Q grid.

3.1.5 Q analysis

Q sorts were analysed using PQMethod software. Once participants have completed the sort, Q analysis involves three statistical procedures used in sequence: correlation, factor analysis and computation of factor scores (Watts and Stenner, 2012). Factor analysis seeks correlations between variables, to reduce a multivariate dataset to a small number of dimensions, called 'factors' (Watts and Stenner, 2012). Rotation of a specified number of factors helps their definition by eliminating 'noise' from sorts which load significantly on more than one factor and thus distinctly define none (Wolf, 2006). This modifies statistically significant factors and relates them more closely to the associated Q sorts (Barry and Proops, 2000).

We rotated two, three, four and five factors, and compared the results to determine the most appropriate number of factors to interpret. We chose two factors to analyse and interpret, according to the following criteria: 1) the Eigenvalue should be greater than or equal to 1 (the Kaiser-Guttman criterion described by Watts and Stenner 2012) and 2) there should be at least 2 Q-sorts with significant factor loadings for each factor (Brown (1980). In the three factor solution the third

factor had an Eigenvalue greater than one (1.0201) but only one Q-sort loaded significantly onto one of the factors. The two factor solution was therefore the focus of our interpretations.

Following rotation, PQMethod automatically 'flags' Q sorts to associate them with particular factors. These figures are 'factor loadings', effectively correlation coefficients indicating the degree to which each Q sort relates to each factor (Watts and Stenner, 2012). PQMethod generates outputs for each factor, including an 'ideal-type' Q sort which represents the common ordering of statements for Q sorts associated with this factor. The interpretation centres on these ideal-type Q sorts. Definitive statements (marked with an asterisk) are statements that particular factors rank significantly differently to all other factors (Watts and Stenner 2012).

At this stage, the analysis becomes less technical and more interpretive of the factors (Eden et al., 2005), understood through the ideal-type Q sorts, to understand the meaning displayed in the relative placement of statements. Factors can be interpreted as discourses: 'shared way[s] of apprehending the world' (Dryzek, 2005). We discussed the ideal type Q sorts in light of our understanding of existing viewpoints on the research topic, and wrote narrative descriptions of each factor, supported by direct quotes from respondents associated with the factor and statement scores for the factor. These descriptions are presented as results, although we recognise that this analysis is somewhat subjective (Eden et al., 2005), and we encourage the reader to look at the statistical results and carry out their own interpretation.

4.1 Results

[TABLE 1 ABOUT HERE]

4.1.1 Points of Consensus:

359 The results demonstrate a relatively high level of consensus across the full set of respondents (Table
360 1). In the two factor solution 14 of the 34 statements are 'consensus statements' (those which are
361 not statistically distinguishable between factors)[4]. These statements suggest a degree of *cautious*
362 *pragmatism* about the use of markets in conservation amongst our respondents. This consensus is
363 based both on scepticism about the underlying rationales for market-based conservation and on the
364 ways that markets operate in practice. It is important to note that the strongest positively and
365 negatively ranked statements for both Factor solutions were consensus statements, indicating
366 significant shared ground between all of our respondents.

367 In terms of underlying rationales for the use of markets, there was strong disagreement with the
368 argument that biodiversity that can't survive in the marketplace is not worth conserving (Statement
369 10; Score -4)[5], and strong agreement that choices about conservation should be ethical and political
370 and not solely economic (26; +4). Respondents felt that there is a difference between traditional
371 commodity markets and ecosystem services markets (16; -2). There was a shared view that it was
372 wrong to argue that opponents of markets were not living in the real world (14; Factor One -2,
373 Factor Two -3). Indeed, one respondent from Factor Two expressed frustration with opponents of
374 markets being seen as "airy fairy tree huggers" (Respondent 3).

375 In relation to the operation of markets for conservation in practice, there was strong agreement that
376 they are most effective when directly linked to the delivery of conservation outcomes (7; Factor One
377 +4, Factor Two +3), but also a shared desire for more evidence on the impacts of such approaches
378 before these were more widely adopted (24; +1). There was shared concern about the impacts of
379 markets for local people where they have limited experience of them (28; +1), and a rejection of the
380 view that as engaging in markets is voluntary they cannot be exploitative (30; Factor One -4, Factor

[4] This consensus seems stable across solutions with different numbers of factors. For example, the four factor solution generated ten consensus statements

[5] Note that reporting of statement content will take this form (statement number; Factor score). Refer to Table 1 to see the full statement.

Two -3). One respondent from Factor One said “things like PES are meant to be voluntary, but I guess in practice social coercion is an issue” (Respondent 4).

A further six statements showed a consensus of opinion around the midpoint of the distribution. These included statements about the relationship between markets and local inequality (29; 0), conservation and neoliberalism (20; Factor One 0, Factor Two -1), and the novelty of the market based approach (18; Factor One -1, Factor Two 0). Respondents did not express strong feelings about conditionality as a reason to use markets (6; Factor One 0, Factor Two -1), the risk of artificial substitutes outcompeting nature in providing ecosystem services (27; 0) or the impact of markets on livelihood opportunities for the poor (31; Factor One 2, Factor Two 0).

4.1.2 Factor One – Outcome focused enthusiasm

Despite the considerable consensus between the factors, Factor One is clearly distinguished from Factor Two in having a relatively more optimistic view of the role of markets in conservation (Table 1). It is focused on the most effective ways of securing conservation outcomes given current conditions. Seven respondents were associated with this factor, including two employees of large international conservation organisations, one government advisor and all four academics, of whom two were conservation scientists and two economists.

In terms of underlying rationales for the use of markets, respondents associated with Factor One believe, with declining strength of feeling, that markets provide a new (1*, +3), large (2*, +2) and sustainable (3*, +1) source of funding, and indeed that sufficient funding for conservation *requires* markets (4*, -3). From this viewpoint, markets can be restructured to deliver conservation outcomes (17*, -3). As a result, conservation organisations should promote the economic valuation of nature (21*, +2), support the commodification of nature (22*, -2) and embrace the market rather than fight against it (8*, +1). They felt that pricing nature does not detract from other values (25*, +3), and that decision makers understand monetary values (13*, +1). One respondent suggested that the idea of

405 valuing nature had been around for 20 years or so and “shouldn’t concern us if we communicate it
406 correctly” (Respondent 4). For this respondent what was novel were “the policy measures and actual
407 markets”.

408 In relation to the operation of markets for conservation in practice, respondents associated with
409 Factor One believe, with declining strength of feeling, that they create local conservation incentives
410 (33*, +3), that actors find beneficial outcomes by engaging in them (19*, +2), and they do not deny
411 local people access to natural resources (32*, -1). Speaking of the ability of markets to create local
412 incentives for conservation, Respondent 4 stated that there were “clear case studies of where that
413 has happened”. Another respondent felt that markets “are more effective than Protected Areas or
414 other tools” for conservation and livelihoods (Respondent 2)[6]. Drawing on South African evidence,
415 Respondent 11 stated that “wildlife based market mechanisms have had positive conservation
416 outcomes” (Respondent 11).

417 The respondents associated with this factor do not see markets as too unpredictable for
418 conservation purposes (11*, -2) and feel they are in turn capable of handling the unpredictable
419 qualities of ecosystems (23*, -1). This demonstrates a managerial attitude to nature. They feel that
420 partnerships with the private sector do not undermine conservation (15*, -3) or constrain the ability
421 of conservationists to express concerns about market-based conservation (34*, -1). An overall
422 position of pragmatism emerges (12*, -1), characterised by Respondent 2’s view that conservation
423 should “leverage” rather than “embrace” markets.
424

425 4.1.3 Factor Two – Ideological scepticism:

426 Factor Two is distinguished from Factor One in having a more ideological scepticism of the
427 underlying rationale for market-based conservation (Table 1). Where respondents associated with

[6] It is interesting to note that Respondent 2 clearly considered market-based conservation and protected areas to be mutually exclusive.

Factor One felt that practical possibilities of using markets to deliver conservation outcomes overcame their caution (as expressed in the consensus statements), those associated with Factor Two were not similarly persuaded. Respondents associated with this Factor included one former and two present employees of large international conservation organisations, one social entrepreneur and one employee of an animal welfare organisation.

In terms of the underlying rationale for the use of markets, respondents associated with this factor felt that putting a price on nature detracts from other values (25, -4), and felt that conservation organisations should not promote economic valuation (21, -3) or commodification of nature (22, +4). These three matters of principle were the strongest points of disagreement between Factors 1 and 2. For these respondents the argument that conservation should be framed in monetary terms in order to be legible to decision makers is not convincing (13, -2), with Respondent 6 stating that "Economic valuation to raise awareness is highly dangerous". Respondents associated with this factor felt that biodiversity loss is primarily driven by market capitalism (9, +3) and that therefore conservation should not embrace the market (8, -2), especially since markets cannot be restructured sufficiently to deliver conservation outcomes (17, +2). This viewpoint characterises markets as the underlying problem for conservation and not therefore usefully part of the solution, as captured by Respondent 9's statements that "commodification of biodiversity is happening and that is why we are losing it" and "we will lose the biodiversity of the planet because we are chasing capitalism".

Respondents associated with this Factor also identified fundamental problems with the characteristics of markets for conservation. They felt that markets cannot handle the unpredictable properties of ecosystems (23, +3), and are themselves too unpredictable for conservation purposes (11, +2). If the use of markets involved private sector partnerships, these were seen as problematic because they undermine conservation outcomes (15, +1) and make it more difficult for conservationists to express concerns about market-based conservation (34, +2). As a result, pragmatism was not seen as a good enough reason to risk using markets (12, +2).

453 Respondents associated with this Factor did not express strong views in relation to the actual
454 operation of markets for conservation in practice. While recognising that non-market sources of
455 conservation funding are not currently sufficient (4, -1) and that markets do provide a new source of
456 funding (1, +1), they felt that markets were neither a large (2, -1) nor a sustainable (3, -1) source of
457 funding. They agreed that markets deny the poor access to natural resources (32, +1). In the words
458 of Respondent 6; “Because you’re playing with money you are creating new power structures”. They
459 disagreed that conservation should use markets because they are the most efficient means for
460 allocating scarce resources (5, -2). This contrasts with the view of Respondent 11 (Factor One) who
461 felt that some publicly funded projects were a “nightmarish waste of money” and that “a property of
462 the market” is to identify better solutions.

463 **5.1 Markets and conservationists: a complex relationship**

464 These results suggest that our sample of conservation professionals and academics are somewhat
465 circumspect about the growing use of markets, and market-like instruments, in the context of
466 biodiversity conservation, although recent literature on this subject has been considerably more
467 polarised. The perspectives reported here do not indicate strong, or uncritical, adoption of
468 neoliberal approaches, and the views of our respondents appear to recognise the limitations of
469 markets both in theory and practice. While there is some difference in views between the two
470 dominant discourses that we document in this paper, there is considerable convergence towards a
471 position that we have characterised as ‘cautious pragmatism’. Given that Q method studies
472 commonly identify strongly divergent views, the fact that 14 of the 34 statements were ‘consensus
473 statements’ is striking.

474

475 These findings are of some significance to recent critical social science scholarship, including in a
476 special issue of this journal on Market-Oriented Conservation Governance. This literature

477 characterises conservation professionals as far less critical, and ready to embrace the logic of
478 markets and the underlying tenets of neoliberalism with little dissent. Interestingly, many of these
479 critiques are based on trying to understand organisational (not individual) perspectives, and
480 potentially over-simplify the views of conservation scientists and practitioners in order to make what
481 are often valid, and strong, theoretical points about the limitations of markets. While accepting the
482 important points made by these critical scholars and recognising that Q method provides a more
483 superficial method with different emphases when compared to ethnographic methods, this paper
484 departs from this previous work by empirically investigating the views that conservation
485 professionals hold, and attempts to understand the individual perspectives behind their positions.

486 What is particularly surprising in our findings is the lack of a strong pro-markets perspective among
487 our respondents, even though a number of them are associated with organisations that strongly
488 advocate, and adopt, market-oriented conservation activities. While we are cautious about over-
489 generalising based on the results from this limited empirical exercise, this does indicate a likely
490 dissonance between the values held by individual employees of large conservation organisations and
491 the official positions adopted by the organisations themselves. This resonates with earlier work
492 which has demonstrated that the personal environmental values held by (European) policy advisors
493 are distinct from their professional environmental policy activities (Craig and Glasser, 1993). Our
494 respondents participated in our study in a personal capacity, and the results suggest that these
495 individuals are far more sceptical about markets than the positions articulated by their
496 organisations. If this is indeed the case, then it raises the interesting question of where the more
497 'pro-markets' stance of organisations comes from. Are senior staff who have the power to dictate
498 organisational behaviour more personally convinced by arguments for market-based conservation
499 than our respondents, or are they simply responding to an institutional and funding environment in
500 which there seems no alternative (Büscher, In Press)? Is such a framing (the lack of alternatives)
501 itself a reflection of the hegemonic dominance of the ideology of neoliberalism in contemporary
502 public life, as has been suggested by some of the critical social science literature (Büscher et al.,

2012)? Alternatively, could the adoption of market based approaches be a more prosaic consequence of close engagements with the corporate sector that were initially motivated by a desire to promote less environmentally damaging behaviour (as reviewed by Robinson, 2012)? These will be important questions for future research on this topic.

Our detailed conversations with our respondents while they were completing the Q-survey suggest some reasons behind this more cautious engagement with market-based conservation. For some, this had emerged after actually trying and failing to implement market approaches in projects, often without consciously recognising at the time the neoliberal logics on which these were based. The frustrations associated with trying to actually make markets for conservation work in practice have led to a recognition that these interventions do not always follow the logic of neoclassical economics textbooks. Some of our respondents also expressed some concerns about the ambiguity about what actually constituted a market, or market-approach, for conservation, reflecting the considerable heterogeneity of understanding that Pirard (2012) alludes to. For example, Respondent 12 said that "If it involves payments people assume it is a market – that is just our ignorance as biologists".

6.1 Conclusion

This paper argues that social science critiques of conservation need to be cautious about over-generalising the extent to which conservation professionals approve of the adoption of neoliberal, market-led approaches in conservation. Using a sample of conservationists drawn from mainstream NGOs and academia, we found no such consensus. Our respondents are familiar with many of the limitations that critics of market-based conservation identify, often as an outcome of practical implementation. Indeed, while they seem less familiar with some of the linguistic and conceptual framing of these critiques (such as the use of the term 'neoliberalism'), their cautious pragmatism seems a more grounded reaction to the messy reality that characterises most conservation projects.

Q methodology is a powerful approach for identifying value positions with respect to a particular issue among a group of respondents. However, the results cannot be taken as representative of a wider population, and nor can they be used to identify what informs perspectives or causes value-action dissonance without more detailed qualitative research. Further exploration of these issues is needed in order to begin to tackle the deeper question of how conservationists are coming to terms with market based interventions, and how they frame them within their understanding of the wider challenges faced by contemporary conservation. Such research might lead to a less polarised debate, and perhaps even the forging of some common ground between conservation professionals and their (critical) social science interlocutors.

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Figure 1

-4 (disagree most strongly)	-3	-2	-1	0	+1	+2	+3	+4 (agree most strongly)

Figure 1. Design of the Q methodology grid used

Table 1

Table 1: Idealised Q-sort and z-scores for the two-factor solution

Statement	Factor 1 *'outcome-focused enthusiasm'*		Factor 2 *'ideological scepticism'*	
	Rank[a]	z-Score	Rank[a]	z-Score
1. Markets provide a new source of funding for conservation.	3*	1.51	1*	0.69
2. Markets provide a large source of funding for conservation.	2*	0.89	-1*	-0.45
3. Markets provide a sustainable source of funding for conservation.	1*	0.78	-1*	-0.39
4. Sufficient funding to reverse biodiversity loss can be raised without turning to markets.	-3*	-1.05	-1*	-0.25
5. Conservation should use markets because they are the most efficient means for allocating scarce resources.	0*	-0.15	-2*	-1.21
6. Market-based conservation is preferable to other forms because it is conditional on performance.	0	0.14	-1	-0.45
7. Markets are most effective for conservation when they are directly linked to the delivery of conservation outcomes.	4	1.54	3	1.3
8. Conservation should embrace market-based capitalism, not fight against it.	1*	0.51	-2*	-1.02
9. Globally, biodiversity loss is primarily driven by market-based capitalism.	0*	0.08	3*	1
10. Biodiversity that cannot survive in the marketplace is not worth conserving.	-4	-2.01	-4	-2.16
11. Markets are too unpredictable to be used for conservation purposes.	-2*	-0.8	2*	0.76
12. Pragmatism is not a strong enough reason for conservation to risk the use of market forces.	-1*	-0.71	2*	0.83
13. Decision makers understand monetary values, so conservation should be framed in those terms.	1*	0.88	-2*	-1
14. Those who oppose market-based conservation are not living in the real world.	-2	-1	-3	-1.52
15. Conservation partnerships with the private sector are undermining conservation outcomes.	-3*	-1.52	1*	0.49
16. There is no difference between markets for traditional commodities and markets for ecosystem services.	-2	-0.97	-2	-0.78
17. Markets cannot be restructured sufficiently to deliver conservation outcomes.	-3*	-1.16	2*	0.71
18. There is nothing really new about the market-based approach to conservation.	-1	-0.58	0	-0.06
19. By engaging in markets for conservation, actors find mutually beneficial outcomes.	2*	1.04	0*	0.23

20. The expansion of market-based conservation has nothing to do with neoliberalism.	0	-0.18	-1	-0.7
21. Conservation organisations should promote the economic valuation of nature.	2*	1.08	-3*	-1.42
22. Conservation organisations should not support the commodification of nature.	-2*	-0.96	4*	1.48
23. Markets have no way of dealing with unpredictable properties of ecosystems, and this makes them dangerous for conservation.	-1*	-0.43	3*	1.4
24. We need more evidence on the impacts of market-based conservation before we go too far.	1	0.78	1	0.56
25. Putting a price on nature does not detract from all the other reasons to value it.	3*	1.27	-4*	-1.52
26. Choices about conservation should be acknowledged as ethical and political, and not presented as solely economic.	4	1.55	4	1.87
27. There is a risk that in a market, artificial substitutes may become more competitive than nature at providing services.	0	0.15	0	0.22
28. Market-based conservation has negative social impacts in places with limited experience of the market economy.	1	0.16	1	0.43
29. Market-based conservation increases inequality in local communities.	0	0.1	0	0.43
30. Market-based conservation transactions are voluntary, so there is no possibility for exploitation.	-4	-1.53	-3	-1.29
31. Market based conservation provides livelihood opportunities for the poor.	2	0.91	0	0.2
32. Market based conservation denies poor people access to natural resources on which they depend.	-1*	-0.71	1*	0.55
33. Market-based conservation creates local incentives to support conservation.	3*	1.14	0*	0.13
34. Partnerships with the private sector have made it more difficult for conservationists to express concerns about market-based conservation.	-1*	-0.76	2*	0.92

[a]Rank relates to the idealised Q sort position in the survey grid (see Figure 1).
Distinguishing statements (where $p < 0.05$) are marked with *. Note that by definition in a 2 factor solution, distinguishing statements are common to the two factors. Statements that do not distinguish are consensus statements.

Detailed Response to Reviewers